Kadaknath is a famous and well-documented Indian poultry breed and pride of Madhya Pradesh. Kadaknath is also known as “Kala Masi” as it has black color meat, skin, tongue, beak, legs, crown and intestines. Inspite of the fast growth of poultry sector during the last decade we are still not able to meet the ever growing demand. Therefore, there is need for diversification of poultry species and hence the present work was undertaken.

MATERIALS AND METHODS

The present study was conducted on 20 birds of Kadaknath fowl in the Department of Veterinary Anatomy, G. B. Pant University of Agriculture and Technology, Pantnagar-263 145 (Uttarakhand).

ABSTRACT

The study was conducted on 20 birds (age groups of 0, 7, 28 and 112 days) of Kadaknath breed of fowl. Proventriculus was smaller than gizzard and it continued anteriorly without any distinct gross demarcation with esophagus. The outermost surface remained covered by a black coloured fascia. Its long axis was slopped from left to right of the median plane. Numerous grossly visible wide, round papillae were seen on the mucosal surface which gradually decreased from 0 day old bird to 112 days old bird. All the gross morphological parameters like length, diameter, thickness and cross sectional area showed progressive values with advancement of age.

Keywords: Biometry, Kadaknath fowl, Morphometry, Proventriculus

RESULTS AND DISCUSSION

The proventriculus was small, elongated, spindle shaped and thick walled tube (Figs. 1, 2) as reported earlier (Bradley and Grahame, 1960; Dyce et al., 1965, Hodges, 1974; Getty, 1975). The long axis of the proventriculus was slopped from the left to right of the median plane due to the location of other organs like liver, heart and spleen. In contrast, it slopped from right to the left in fowl which may be due to the breed difference. The lumen of the proventriculus was narrow at both the ends, which continued anteriorly with oesophagus and posteriorly with gizzard (Fig. 1). There was constricted area between the proventriculus and gizzard referred as isthmus (Fig. 1). Luminal surface was whitish and showed numerous low rounded papillae which were grossly visible (Figs. 3, 4). In the present study, the number of papillae in the luminal surface of the proventriculus was found to be 50, 46, and 44 in 0 day, 7 days, 28 days and 112 days old birds, respectively. The reduction in the number of papillae may be due to fusion of adjacent papillae. These papillae were close to each other at the cranial and caudal ends whereas, these were free from each other at the middle dilated portion as reported by Lambate and Mamde (2008). Present study also revealed that the outer surface of the proventriculus was glistening and covered with blackish fascia.

The average weight, volume and thickness in 0, 7,
28 and 112 days old birds was 0.33±0.01 g, 0.52±0.01 g, 
3.93±0.07 g and 9.89±0.08 g; 0.74±0.01 cc, 1.18±0.10 cc, 
2.1±0.07 cc and 3.68±0.10 cc and 2.41±0.07 mm, 
2.73±0.09 mm, 4.46±0.04 mm and 5.35±0.12 mm, 
respectively. Lambate and Mamde (2008) reported the 
weight of the empty proventriculus as 2.42±0.09 g, 
4.87±0.11 g and 6.58±0.32 g, respectively, the average 
volume and thickness of wall of proventriculus as 3.02±0.12 
cc, 5.56±0.24 cc and 6.70±0.12 cc and 0.45±0.01 cm, 
0.54±0.01 cm and 0.61±0.02 cm in 2, 4 and 6 weeks old 
broiler birds, respectively. The average length of the 
proventriculus in 0, 7, 28 and 112 days old birds was 
12.63±0.20 mm, 14.47±0.21 mm, 23.04±0.47 mm, and 
29.35±0.18 mm, respectively.

The average cross sectional area of proventriculus 
in 0, 7, 28 and 112 days old birds was 11.5±0.65 mm², 
24.3±0.90 mm², 177.1±2.53 mm² and 255±3.53 mm², 
respectively. The average diameter of the proventriculus 
was highest in 112 days old birds and lowest in the day old 
birds. The average diameter of the proventriculus in 0, 7, 
28 and 112 days old birds was 6.69±0.26 mm, 8.08±0.052 mm, 
10.93±0.22 mm and 14.11±0.18 mm, respectively. Hodges 
(1974) reported that the proventriculus in adult fowl was 
approximately 2 cm in length. Lambate and Mamde (2008) 
reported that the average diameter of proventriculus in 2, 
4, 6 weeks old broiler birds was 1.25±0.02 cm, 
1.57±0.01 cm and 1.80±0.02 cm, respectively.

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